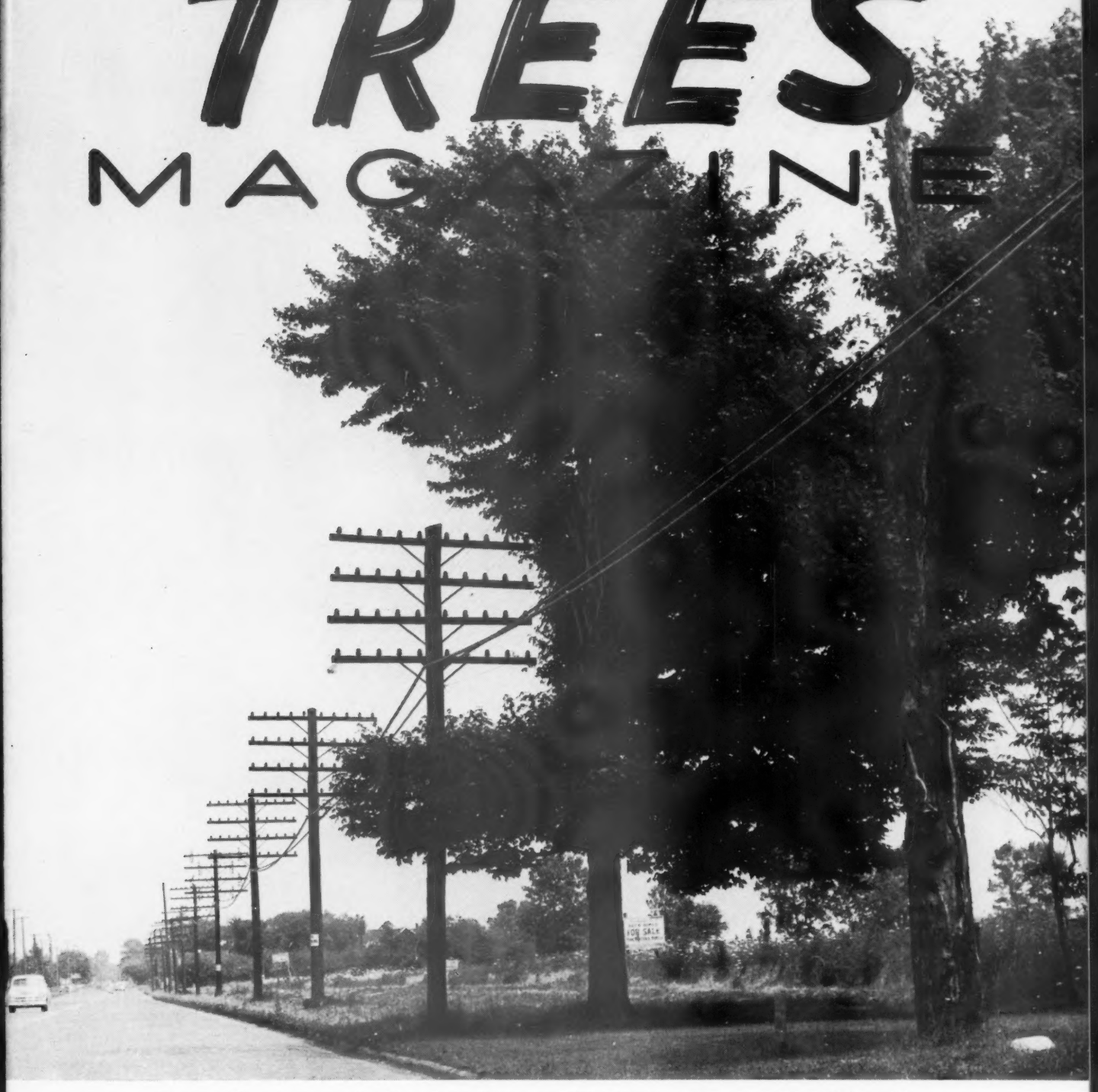
TREES MAGAZINE



Proper Plantings and Wire Installations Will Obviate Monstrosities Like This

American Association of Nurserymen Convention—Detroit—July 13-17

Insects as Carriers of Tree Diseases — *R. D. Shenefelt*

Garden Clubs Support Tree Programs — *Mrs. T. O. Guptill*

May-June, 1952 *The Journal of American Arboriculture* Vol. 12. No. 4

How much wood could a woodcutter cut ?

1. HOW MUCH COULD HE CUT BY HAND?

A pretty good man, with a sharp hand saw and willing muscles *might* cut 2 cords of wood in a day. It would be a long day, and would probably seem even longer!

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ALONG THE WAY With . . . EDW. SCANLON

■ "TREES is a wonderful help—wouldn't be without it"—TOM MASON JR., ROCKFALL, CONN.—Thanks TOM.

■ **A GRAND MAGAZINE" sez J. J. KONEAZNY of CANAAN, CONN. Keep up the NICE WORDS, WE LOVE IT.**

■ Had a SURPRISE AND WELCOME visit the other day from ROGER SWINGLE, U. S. D. A. Columbus. ROGER is up to his ears in an EXPANDED PROGRAM to find DUTCH ELM DISEASE and PHLOEM NECROSIS RESISTANT elms—not only AMERICAN BUT EUROPEAN as well.

■ **Elected PRESIDENT of the WESTERN CHAPTER N.S.T.C., at the recent 19th MEETING IN PASADENA, was ROSS McINTIRE. MAC has been one of the REAL EARNEST CORNERSTONES of the WESTERN CHAPTER. It's a FITTING HONOR to a good guy.**

■ Among the DISTINGUISHED GUESTS at the Western meeting were OHIO'S PAUL TILFORD, also SECRETARY of the U. S. A.'s NATIONAL ARBORIST ASSOCIATION, and NOEL WYSONG, PRESIDENT of the NATIONAL SHADE TREE CONFERENCE, and sometimes of ILLINOIS. 246 persons signed the book—a SWELL TURNOUT.

■ **In FROM THE HILLS a short time ago was CHARLIE ROSS of the OHIO HIGHWAY DEPT. Landscape Division. CHARLIE did a SOIL TEST on the RANCHO REAL ESTATE—very good too.**

■ The ERRATIC WEATHER WE had THIS PAST SPRING prompts me to STATE THAT the WEATHER HERE is becoming ALMOST AS BAD and uncertain AS CALIFORNIA'S.

■ **Of all the SUCKER DEALS the AMERICAN PEOPLE have fallen for, in the past 20 YEARS, this EISENHOWER STINKEROO takes the cake. He says NOT A WORD and a lot of RUMMIES start making out WHAT A GREAT ADMINISTRATOR he is—how do you know he isn't another "ME TOO" KID like DEWEY, or an "I CAN DO IT BETTER" boy like WILLKIE. Anyway in my STUDIED OPINION a MILITARY MAN is the MOST POORLY EQUIPPED person for any job but WASTING MONEY and RESOURCES. Of all the periods in OUR HISTORY this is absolutely the WORST in which TO SELECT SUCH A "GENIUS" to finish the DISINTEGRATION SO ABLY started by ROOSEVELT AND CONTINUED BY TRUMAN. Heaven GIVE THE PEOPLE MORE SENSE than the EISENHOWER REPUBLICANS HAVE SHOWN.**

■ I PREDICTS: that, if EISENHOWER is NOMINATED, the DEMOCRATIC NOMINEE WILL BEAT HIM worse than ROOSEVELT BEAT LANDON. I HOPE.

■ **WHAT DO YOU MAKE OF THIS:—first we have KRILIUM then FLUFFIUM, now a new one LOAMIUM—and all as good for the soil as WHEATIES is for COWBOY ACTORS.**

■ What DO YOU THINK of the picture of the HANKOW CONTORTED WILLOW (Salix matsudana tortuosa) on page 11. It makes a MIGHTY INTERESTING TREE because of the CURIOUS TWISTED BRANCHES. In addition tho it SHOULD MAKE AN INTERESTING HEDGE OR WINDBREAK—note the SIZE AND FORM of the nice specimen in the picture.

■ **The BETTER ACQUAINTED I BECOME with the "SMALL ACERS" THE MORE INTRIGUED I become with THEIR BEAUTY AND HIGH VALUE, and the MORE PERPLEXED I become with the MAJORITY OF THE PEOPLE who make up the FABRIC of HORTICULTURE—how can they see BEAUTIFUL PLANT MATERIAL such as these LOVELY TREES and NOT GO SCREAMING for it until SOMEONE GROWS IT. Boy, I am KONFUSED.**

■ BRIAN MULLIGAN, Director of the UNIVERSITY OF WASHINGTON ARBORETUM (SEATTLE) gave ME a FINE LITTLE specimen of ACER FORRESTII for the RANCHO—gracias amigo—its leaves have unfolded and you SHOULD SEE IT. It looks a little like a TRICOLOR BEECH, than which there is NOTHING LOVELIER. Sure would LIKE TO GET about 10 LBS OF SEED of this BEAUTY.

■ **Received an ARBOR DAY NOTE from KOREA the other day. GEORGE BOTTOMS, ARBORIST OF BATTLE CREEK and now with the Army, SENT A COPY of the "KOREA TIMES", published in PUSAN. The Government backed a program that resulted in the PLANTING OF 1,300,000 TREES. The boys in his camp PLANTED HUNDREDS of trees and shrubs in the COMPANY AREAS—must be PLANNING TO STAY AWHILE. Thanks GEORGE —hurry back.**

■ Remember A PICTURE in TREES several years ago of a MAGNOLIA GRANDIFLORA found growing in CLEVELAND. Well, IT FLOWERS NICELY and A YEAR AGO we OBTAINED SEED and now have ONE sturdy LITTLE OFFSPRING. Hope this MEANS SOMETHING—it would be a GRAND TREE TO ACCLIMATE to this PLANT ZONE.

■ **Another TREASURED OLD MASTER in the RANCHO GALLERY is a VINE MAPLE (Acer circinatum) sent by SAM RICH, nursery impressario of HILLSBORO, ORE. This GREEN BARKED, ODD LEAVED maple that turns FIRE RED IN FALL is HARDY here and should BE AVAILABLE somewhere. PROPERLY GROWN in STANDARD FORM it makes a NICE LITTLE TREE to 25 feet. A BEAUTY—and mine is breaking like a charm—THANKS SAM.**

■ FRED WITT of CROWN HILL CEMETERY, HUDSON, OHIO, dropped in one day to TALK SPRAYING. They have a TOUCH OF DUTCH ELM DISEASE and don't want anymore, so THEY BOUGHT a MIST SPRAYER. Got to go out there and SEE THEIR TREES some day.

■ ARNOLD BURNELL, MANKATO, MINN., sends a clipping about a BRIGADIER GENERAL, FREDERIC B. BUTLER at CAMP McCOY in WISCONSIN and a TREE PLANTING BINGE he went on. Last fall he SUSPENDED ALL OPERATIONS, of a MILITARY NATURE, and the 15,000 MEN in the camp PLANTED TREES FOR A WEEK. A MICHIGAN STATE grad was the master mind, ERWIN KULOSA. At least that was ONE WEEK in the HISTORY OF THE CAMP that something USEFUL was ACCOMPLISHED.

■ YOU SHOULD SEE the nice bloom on the two AESCULUS BRIOTTI obtained this spring from ED MENNINGER—two spikes on each tree—a VERY NICE BRIGHT RED. Why isn't this RED FLOWERED HORSECHESTNUT in COMMON USE—for that matter it's a SAD COMMENTARY on something that dozens of NATURES BEST WORKS OF ART haven't been made KNOWN TO THE PUBLIC.

■ **DON'T FORGET to attend AMALIA'S CLAMBAKE at ULCER GULCH in BOSTON sometime between AUG. 18 AND 22—at the NATIONAL SHADE TREE CONFERENCE. Clams cooked in seawood—UGH!**

■ From Maunsell Van Rensselaer in California comes the dope that the Saratoga Experimental Gardens now becomes the Saratoga Horticultural Foundation. Ray Hartman is the Founder; Ray and Mrs. Hartman have deeded the land to the Foundation. A laudable undertaking — congratulations to all concerned.

■ **In case you didn't know, Louie Chadwick is, come July one, the new Head of the Dept. of Horticulture at Ohio State — good luck Louie.**

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TREES MAGAZINE
Box 5607, Cleveland 1, Ohio

The Editors of TREES invite discussions, comments and all types of literary materials pertaining to trees and tree preservation from any person engaged either in the scientific advancement or commercial development of the field.

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May-June, 1952 **Journal of the National Arborist Association** Vol 12 — No. 4

EDWARD H. SCANLON, Editor
Box 5607, Cleveland 1, Ohio
ADams 5-2357

"No place is complete without trees. A home without trees is charmless; a road without trees is shadeless; a park without trees is purposeless; A COUNTRY WITHOUT TREES IS HOPELESS."

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Out On A Limb

LAPEL BUTTON FOR TEN YEAR MEMBERS

Maybe this is a "hole-in-the-head" idea, but anyway its been kicking around for a number of years and should be let out for general discussion.

The question is, shall we or shall we not have lapel buttons for members of the National Shade Tree Conference? The reason for writing this piece is that the idea appeals, and seems to have justifiable merit.

While there is not too much coming and going in the Conference membership it would seem that there should be a stipulation that a person must have had a constant membership record of at least ten years before being allowed to wear the lapel button — or maybe five years would seem to be a long enough period to prove the members' good intentions toward the organization.

Some readers may say it is silly to restrict the lapel buttons to five or ten year members, however, having seen how some people use their Conference membership for commercial advantage—that is, they present the fact of their membership as evidence of their knowledge and ability to cope with tree problems, and there have been some few raw ones pulled here and there, it would seem like a good idea to at least give such a restriction serious thought so that a person paying a one year fee could not, if so minded, continue to indefinitely represent himself as a member. Membership over a period of five or ten years would seem to be good evidence of loyalty to the Conference.

A nicely designed button, in several colors, with an embossed tree would be very attractive and would cause people to inquire what it represents and would give the wearer one more opportunity to outline the merits of the National Shade Tree Conference—this, we need.

We hope some discussion on this proposal will take place at Boston on the occasion of the 28th National Shade Tree Conference Aug. 18-22.

PHONY NURSERY TREE ADVERTISING

This past spring we were more conscious of nursery advertising of shade trees in the public press than at any time in the past fifteen years—and nine tenths of it was phony, and in some cases deliberately false and misleading.

Did you see the prize of them all. This was prominently displayed in newspapers, and some of the garden magazines even contributed to the delinquency of Arboriculture by carrying the ad. It showed a huge appearing flowering tree, with flowers the size of pails, and in the background a loving couple looking up with pride and joy at this magnificent rival of the Royal Poinciana, Jacaranda, Crepe Myrtle and other sensational flowering gems. Judging from the size of the loving couple this specimen would be about 25 or 30 feet tall. The "tree" was Althea, Rose of Sharon.

Another prize was an ad loudly proclaiming the gorgeous

PLANT AMERICA

"Royal Red Maple." Obviously an attempt to play on the qualities of the Crimson King Norway or the Japanese Red Maple. A letter inquiring the botanical name brought a terse scribble on our letter that a few 2'-3' trees were still available. It can be assumed that the tree is Acer rubrum, an excellent tree all around, but certainly not a red leaved variety as the ads implied.

It is unfortunate that the responsible nurserymen do not sponsor a series of institutional ads giving the qualities of and best uses for fifty to a hundred of our better exotic and native species and varities. Maybe the Nurserymen's Association should undertake such an educational campaign. If people know about the better trees, they'll buy them—and that's for sure.

GILBERT SKUTT AND HAROLD NEWINS RETIRE

In the past year two long time members of the Advisory Council of TREES Magazine have retired from active duty. Altho the field of each was separate and distinct each man had a common interest in shade and ornamental trees. Gilbert Skutt had a more active and closer interest, while Harold Newins had what you might term an academic interest. Dr. Newins is an eminent Forester, and for many years had served as the Director of the School of Forestry, University of Florida. Mr. Skutt has just retired as Superintendent of Parks at Los Angeles.

Our personal acquaintanceship with Gilbert Skutt goes back twenty years to the time when the Editor was beating his brains out as City Forester at Santa Monica and was busily engaged in trying to engender enthusiasm for his proposal to find a Western Shade Tree Conference. One of the first people contacted was Gilbert Skutt, then Superintendent of Parks at Pasadena. Always progressive Mr. Skutt gave the proposed Conference his blessing and began working tirelessly to assure a successful inaugural meeting. The meeting was held at Santa Monica in 1934 — was a success with over 100 in attendance and Mr. Skutt has never let down in his enthusiasm for the Conference in all these years. Needless to say a warm, close personal friendship was built up and remains highly treasured to this day. He served as President and Chairman of the first conference. A few years ago he was given the highest honor in the field of park administration when he was elected President of the American Institute of Park Executives. We wish him many years of joy and relaxation in his long neglected hobby of painting.

Harold Newins had long recognized the need for active interest in the field of arboriculture in the South, and altho he is a Forester of renown he deicded to toy and interest the arborists and park people of the south in an organization to promote shade tree welfare. The Southern Shade Tree Conference was organized by Dr. Newins in 1939 and has, this past winter, just enjoyed its 13th annual meeting. Harold and Mrs. Newins have been thoroughly enjoying their well earned rest and we wish them the best of everything.

Your services to Arboriculture and to TREES Magazine will adways be remembered and deeply appreciated.

Women Lose Battle to Save Trees

Lansing State Journal
March 17, 1952

Embattled Oxford's, Michigan housewives had the backing of a court order today in their fight to keep a construction company from hacking down the old maple trees along Washington Street.

"That clears the air a bit", said company superintendent Claire Copeland. "When the ladies came at us with those saws and hatchets, we didn't know what to do. Now we can wait for the court to decide."

Copelands firm, The Eisenhour Construction Company of East Lansing, was hired by the state to saw down 130 trees to make way for a highway widening project. Workmen leveled 23 trees before the women dropped their knitting and descended on them in an angry swarm.

Some brandished saws and hatchets. Other kicked ladders from under the workmen, leaving them stranded. Mrs. M. L. Miller organized a picket line that paraded up and down the sidewalk.

Workmen said some of the housewives, in the manner of the suffragettes who demanded votes for women a generation ago by chaining themselves to iron fences, embraced their beloved maples and dared the workmen to apply the buzz saw.

Miss Maude Unger argued the men into halting operations while Mrs. Robert A. Reid passed around a court petition.

The petition went to Circuit Judge George B. Hartrick, who issued a restraining order and called a hearing for Monday.

Lansing State Journal
March 19, 1952

OXFORD, Michigan . . . Attorney Louis A. Gottlieb headed for Lansing today to ask the Michigan Supreme Court to save Oxford's stately maple trees from the woodsmans axe.

A group of Oxford, Michigan housewives decided to carry the battle through the States highest court when 40 of the 130 tall, budding maple trees were turned into kindling wood yesterday as part of a road widening project. "All we're asking is that the trees be saved until we get a hearing" Mrs. Robert A. Reid said. "The machinery of government shouldn't be allowed to roll over people without a hearing."

Last Friday the women chased off Eisenhouser Construction Company workers of East Lansing with brooms when the trees started to tumble. They then obtained a temporary injunction to halt the cutting.

Lansing State Journal
March 25, 1952

The State Supreme Court ruled against the women from Oxford, Michigan, in their battle to try and save the maple trees in a road widening project.

Karl Dressel,
Mich. State College

Goldenrain Can Take It

The nice little tree in the foreground is Koelrenteria paniculata. Picture sent by Bill Brenneman of tree in Muskegon Heights, Mich.

Insects As Carriers of Tree Diseases

By R. D. Shenefelt

Dept of Entomology
Univ. of Wisconsin

(Talk given before Midwestern Chapter National Shade Tree Conference, Feb. 13, 1952)

A giant silkworm moth larva feeding on Northern Pin Oak

Somebody has written that, in certain respects, trees are like women — that, to quote "They go with bare limbs all winter; get a new outfit every spring; and live off the sap!" Trees, however, also possess other human attributes. They must have proper nourishment, be brought up in the right kind of environment, and have the proper care in order to fully realize their inherited potentialities. They go through the same life stages as man, developing rapidly at first, later bearing fruit, in old age becoming bent and gnarled, and eventually they die. Environmental influences, such as undue crowding, may produce weak trees. Certain trees become "wolf" trees and take more than their share of things. Like humans, trees are also subject to diseases. And this brings us to our topic which is "Insects as Carriers of Tree Diseases."

Before proceeding further, it is necessary to limit the term "disease." We will use the word to mean an abnormal condition or disorder within a plant caused by bacteria, fungi, viruses or protozoa. By thus restricting the use of the term we rule out of our discussion all abnormalities caused by such things as drought, malnutrition, lightning, defoliation by insects and genetic factors.

The mere mention of the destruction caused by chestnut blight, Dutch elm disease and oak wilt is sufficient to indicate the importance of our subject. A few of the diseases caused by the pathogens mentioned may well be listed. Since fruit trees are often used for shade purposes, certain of their diseases are included.

Bacteria are responsible for crown gall (on hardwoods and conifers), fire blight (on pear, hawthorn and many other trees or shrubs), olive knot, and other diseases.

A few of the diseases caused by fungi are blue stain (on conifers), Dutch elm disease, beech-bark disease, chestnut blight, tree-cricket canker of apple, perennial canker of apple, burn blight of Norway and jack pine, and oak wilt.

Viruses are responsible for such diseases as peach yellows and phloem necrosis of elm.

Phloem necrosis of the coffee tree is due to a protozoan.

Transmission of plant diseases by insects may be either mechanical or biological. During mechanical transmission, which may occur externally or internally on the insect, the pathogen does not undergo a definite part of its life cycle nor does it multiply in the vector. This type might be thought of as "contamination," with the insect serving as the carrier.

During biological transmission, in contrast, the pathogen lives and often multiplies within the host. For some viruses, a period of time must elapse before the insect becomes infective after feeding on a diseased plant.

Let us now examine the role which insects play in the spread of plant diseases.

1. They may, by wounding, make courts of entry for the pathogen, i.e., simply set the stage for invasion, the disease organism being dispersed by some other agency such as wind or water. This may be illustrated with crown gall and perennial canker of apple.

Several workers have shown that white grubs and other insects cause injuries through which the bacterium, *Pseudomonas tumefaciens* (S. & T.), responsible for crown gall gains entrance. The insects as such, however, probably play little part in actual dissemination of the disease.

Perennial canker of apple is caused by a fungus, *Gloeosporium perennans* Zeller, which is inactive during the summer. The canker heals during this period and the new ring of callus formed walls off the fungus. The fungus lives for a long time as a saprophyte in the dead bark and sporulates abundantly but cannot further invade the living tissue unless a wound is present. Woolly aphids, *Schizoneura lanigera* Hausmann, feed on the newly formed callus tissue, causing small blister-like galls to form. When frozen, the galls rupture and form wounds through which the fungus reinfects. An annual canker thus becomes "perennial."

Patronize the Advertisers. Mention TREES

2. Insects may carry the disease organism from place to place without wounding the tree. Fire blight was the first plant disease for which experimental proof of insect transmission was given. In 1891 Waite showed that bees and wasps carried the bacteria, *Erwinia amylovora* (Burrill), from blossom to blossom as they visited the flowers of pear in search of nectar. Later flies were found to carry the organism from holdover cankers to blossoms.

3. Insects may not only transport the disease producing organism but actually inoculate the host tree as they wound it.

Fire blight may be carried by sucking insects such as aphids which wound the tree or shrub and inoculate the bacterium mechanically. It may also be transmittted by the fruit tree bark beetle, *Scolytus rugulosus* Ratz. In addition, fire blight is spread by such agencies as rain drip and wind-blown rain. Sixty years of research on this disease and its modes of transmission have served to show how complicated the picture may become.

Tree-cricket canker of apple also illustrates how inoculation may occur through insects. The tree cricket lays her eggs in branches. First she gnaws a hole in the outer bark, then turns around, pushes her ovipositor into the hole and, after deepening it, lays an egg. A drop of sticky fluid is next secreted on top of the egg. Finally, she plugs the hole with either a fecal pellet or a bit of chewed bark, depending upon the species.

The spores of many fungi, including that of the causative organism of the canker, *Leptosphaeria coniothyrium* (Fckl.), are found on all parts of the body of the cricket, and viable spores are also found in the intestinal tract and fecal pellets. Due to her actions the female serves as an effective instrument for inoculation.

Some other diseases which are inoculated directly by insects are Dutch elm disease, blue stain, phloem necrosis of elm, and peach yellows.

4. Insects may preserve the pathogen during unfavorable periods. This may be illustrated by the relationship between the olive fly, *Dacus oleae* Rossi, and the olive knot disease. This disease is caused by a bacterium, *Phytomonas savastanoi* (E. Smith), and is characterized by knots or galls which are produced on the branches. In Italy much of the olive knot is associated with wounds made by the fly while laying eggs. A pouch, developed from the esophagus, houses the bacteria and serves as a reservoir for them. The intestinal tract of the fly is constantly contaminated by the bacteria and they are passed out in a viable condition with the feces. In the hind part of the intestinal tract there are sac-like outpouchings which are filled with the bacteria. The arrangement is such that as the egg is laid it passes by the openings of these pouches and pushes against them. The bacteria are thus squeezed onto the surface of the egg. After the egg is laid, the bacteria enter it and go into the insect embryo. There is thus a constant association between the bacterium and the insect. This association helps to keep the disease going.

This disease may also occur in places where the fly is not present, as in California. Infection is known here to occur through wounds and rain water to be the principal agent for carrying the bacteria.

5. Insects may produce conditions which make it possible for the disease to continue to exist. This is apparently the case where a virus can be transmitted only by one or two closely related insects and cannot be transmitted by artificial means (excepting grafting). Peach yellows, transmitted by the plum leafhopper, *Macropsis trimaculata* (Fitch) is one of a number of plant diseases where such a highly specific relationship occurs.

What is involved in a study of disease transmission? The answer to this question can be quickly given in general terms. A thorough knowledge of the host (suscept), of the pathogen, of the insects and other animals associated with the host, and of their interrelationships is needed. While this may sound simple, it is actually far from being so and many difficulties are involved.

The ecology, distribution, anatomy, physiology, phenology, etc., of the host tree should be known. It is necessary to be able to separate injuries caused by other things, such as improper nutrition and insect damage, from the symptoms produced by pathogenic organisms. Such distinctions are not always easy to make. In northern Wisconsin we have had trouble in Norway and jack pine plantations with what is called "burn blight" by some and "spittlebug injury" by others. The Saratoga spittlebug, *Aphrophora saratogensis* (Fitch), feeds on the terminals, inserting the beak through the young bark to the cambium layer. Considerable dehydration is caused by the insects sucking sap. Later the wounds become blocked by pitch and some claim that this prevents the flow of sap with the result that the twig dies and becomes a "flag." However, there is also associated with the wound a fungus, *Chilonectria curcubitula* (Curr.). This fungus is well known as a saprophyte. It spreads out from the wound and the dead area surrounding the puncture gets progressively larger. Eventually these necrotic areas fuse and the twig is girdled. The question which remains unanswered is "Does the fungus do the actual killing of the cells or are they dead before the fungus invades?" While this is an academic question, it does illustrate the point. Some very careful fundamental work will have to be done to answer the question adequately.

Similar knowledge of the pathogen is required, i.e., its hosts, distribution,

(Continued on page 18)

A New York weevil and its work. The New York weevil appears in the early part of the year. It gnaws leaves off at the base of the petiole and also gnaws on the young bark.

Garden Clubs Supporting Tree Wardens' Program

By Mrs. T. O. Guptill

(Paper given at Massachusetts Tree Wardens and Foresters Association)

First, I should like to clarify my position before you. I am here as a member of the Massachusetts Tree Wardens and Foresters Association. I am not in any way connected with a business — nor do I represent any outside organization other than the National Shade Tree Conference, of which I am a member. My hope is to do what I can for the organizations to which I belong, and to help on projects that I consider of benefit to Arboriculture which, like the tree, has many branches and all are fascinating in their interests.

It seems to me at each Shade Tree Conference I attend the list of Tree diseases and insects, bent on the destruction of trees, grows longer. Nature surely challenges man to prove his superiority in keeping the balance on his side. I use the word "Man" in a biblical sense covering both sexes. I know you would like to believe there is one business or profession that women leave to the men; the only one I can think of at the moment is Tree Climbing — but look out below! You are sure to find some woman asking questions, for women are growing more and more interested in preserving our shade trees and forests. In justice to women, I do not believe they have wanted to take on as much as we see them doing. Wars, with their changing economy and the loss of man power in the home and community have forced them to enter new fields. It is a challenge I believe they are meeting exceedingly well.

The factor most responsible for developing in woman this rapidly growing interest in the care and planting of trees is the Garden Clubs. There is hardly a town in the country, no matter how small, that does not have one or more Clubs devoted to this subject. Their programs and publications are recognized as a force to be considered, both in Community life and in commercial business.

A woman usually joins a Garden Club thinking it will be a pleasant pastime; a place to exchange ideas and plants. She begins by taking an impersonal view of her own garden and deciding "come spring" she will do something about it. Soon her interest spreads from flowers to her home trees as she learns of the importance in tree care and planting in relation to heat control, value in property and in beauty. From there it is only a step outside the gate to the Community Trees and here is where you Tree Wardens come in.

As a woman voter, she knows more about you than you think. Her newly acquired knowledge has caused her to ask questions about your ability for the job. This interest in you is not going to end with your election, and if you are smart, you won't let it, for with it you can build a stronger Department for your Town. I realize that to many of you this is an old story, but I urge those of you who have not considered these Women's organizations — Garden Clubs, Horticulture Associations and Conservation groups in the Federated Women's Clubs — try getting acquainted with them.

How do you go about getting their help? There are a number of ways and you will need to try them all, if you are to succeed. Take stock of all the possibilities. Decide first what is needed most in your Department. See that you, or someone representing you, have a place on the Garden Club program once during the year; arrange a meeting with the Chairman of Conservation in your Woman's Club. She is responsible for one program and will welcome suggestions for a speaker on that particular subject.

Timing is important in presenting your problem. See that your place on the program is near the time of action; if it is an increase in your appropriation that is needed, just before town meeting is an effective time to discuss your work, its limitations and its needs. Frequently call their attention to something of interest to your Department by sending a typed message to the Secretary or Chairman of the local clubs. I am not forgetting the interest and response of the Men's Clubs, Rotary and Grange. Your local newspaper will print articles on tree diseases, insect life and the activities of your Department. When you have attended meetings covering your work, be sure to send a notice of it to your local reporter with the date, time and a few remarks on the purpose of the meeting. It is of interest to your town and will do much toward concentrating attention on the importance of this work. Use your Town Library to display illustrated material and exhibits. Dutch Elm disease interests everyone, adults and children.

Don't neglect Arbor Day. Talk it over in advance with the School Superintendent and Principal and Parent Teachers Association. Offer to donate a few trees with suggestions for planting — and above all, be present at the ceremony. Someone will need to show them how deep to dig the hole.

If you can find time to talk to the school children especially the grades from the second to the sixth, the age that is most responsive to nature study, you will be surprised at their quick response. In places where there has been persistent destruction of valuable plants and damage to trees by children, a few such talks with illustrative exhibits or films have proven most effective in changing their attitude toward trees. A copy of the Forestry Creed along with membership blanks for the Junior Foresters is a good beginning in interesting these young children who are eager to learn about one of nature's greatest achievements, Trees. I have had occasion to read dozens of papers written by children from these lower grades and their understanding and insight into the plant world would make you realize that all children should have the opportunity to share in these experiences at an age when they are most impressionable.

You have often heard that quotation of Alexander Pope's — "'Tis Education that forms the common mind; Just as the twig is bent, the tree's inclined" — and that is as true today as when it was written.

Select for distribution from the quantities of material printed by Government, State, Arborists and Schools of Forestry, such literature as will be helpful to your individual conditions and easily understood by the layman. The average homemaker's reading time is limited and she does not have the scientific background to absorb many of the treatises on plant life and tree care.

You must keep in close touch with those whose job it is to furnish you with the latest information on the results of their research. In advising on private tree work, explain what being an "Arborist" means and in so doing,

(Continued on page 24)

Please Mention TREES When Writing Advertisers

Dutch Elm Disease Program on Campus

By Gordon S. King
Asst. Professor of Arboriculture
University of Massachusetts

The elms on the campus of the University of Massachusetts have been fortunate to date in not having had Dutch Elm Disease. Our elms are not isolated from the disease for the town of Amherst, which surrounds the campus has had 229 elms known to have been affected with the Dutch Elm Disease.

The University campus is by no means the only area to have encouraging results from a control program. Many towns and cities in New England have been able to reduce the number of elms killed by the disease. Our program is greatly simplified by not having the area divided into private properties that might hinder the control efforts.

It is difficult to say whether we are talking too soon, but if what we have done is helpful in any way to others it is all to the good.

The methods of control used are as follows:

Sanitation

1. All elms are trimmed for deadwood every three to four years, and any large amount of deadwood noticed before the trimming cycle is due is promptly removed.
2. Elm wood removed from the trees is burned in the campus dump.

Spraying

1. The east half of the campus receives a prefoliar spray for the elm bark beetle, of a 2% D.D.T. emulsion containing xylene, Triton X-100, and water; and a foliar application of 1% D.D.T. for the elm leaf beetle. A hydraulic sprayer is used. This is done by the Entomology Department for experimental purposes.
2. The west half is sprayed by the Arboriculture students, using the Iron Age 125 mist-blower and Lawrence Aero-Mist L-80. Two applications are made: prefoliar, using 12% Shell Mistona, and a foliar spray of 6% Shell Vapona. An average of two quarts of spray material was applied per tree in each application. Applications made from sunrise to eight o'clock have proved better than those made during the day; apparently due to less wind and evaporation.

Young elms on the campus of the University of Massachusetts

Even though we are in a state where the Dutch Elm Disease is prevalent, our biggest worry regarding the elms on the campus is the shoe-string root rot, Armillaria mellea. Many of our big elms were filled around with about eighteen inches of cinders, with dirt on top. Over a period of years this fill has injured the roots and base of the trees, permitting the fungus to enter.

We are continuing to raise elms in our nursery for future planting, because we feel that the elm is here to stay providing a complete and prompt control program is used.

New Type Fog Nozzle Makes Basal Dormant Brush Spraying Practical

A unique fog spray nozzle made especially to apply dormant oil base sprays to brush has recently been developed by Bete Fog Nozzle, Inc., of Greenfield, Mass. The manufacturer claims that the new nozzle effects important savings in materials and labor, thereby providing the first practical answer to the problem of basal dormant chemical spraying of brush.

The nozzle, called the HX5, disperses a flat fan pattern of infinite-sized fog droplets in an accurately controlled 10° to 20° spray fan. There are no wasteful side horns or jets. The HX5 nozzle is lightweight, inexpensive, and designed for easy one-man operation.

The atomizing elements of the Bete HX5 nozzle are a series of special narrow angle fan spray discs. A three-foot extension with bent applicator makes it easy to apply a horizontal sheet of spray near the base of the brush. The trigger action shut-off further prevents waste by providing a positive control of the spray flow.

The HX5 nozzle operates with small supply hoses which can be easily handled over long distance to inaccessible places. A garden hose thread connection is standard. Interchangeable spray discs are available in various sizes for different conditions.

Boxwood Leaf Miner

The boxwood leaf miner, *Monarthropalpus buxi* (Laboulb), formerly controlled with nicotine and molasses applied at the beginning of adult emergence is now effectively controlled with DDT. For hydraulic spraying a 25% DDT emulsion should be diluted at the rate of 1½ to 2 quarts to 100 gallons of water or a 50% wettable DDT powder two to three pounds to 100 gallons. The adults which are small red flies, less than ⅛ inch long, usually emerge when the first twigs are about two inches long. They emerge over a period of 10 days to two weeks. Watch the infested leaves and when the head, legs and antennae on

(Continued on Page 16)

Southern Live Oak

Photo Courtesy Association of Commerce, New Orleans

World's Largest Live Oak Tree Is Near New Orleans

The largest live oak tree in the world is this tree standing a little above Hahnville, Louisiana, a town some thirty miles northwest of New Orleans. Its girth is 35 feet, its spread 166 feet.

Another interesting grove of oaks, located on the Mississippi River, just below New Orleans, at the scene of the Battle of New Orleans, is the Versailles Oaks. These majestic oaks—79 of them—are said to constitute the finest grove of live oaks in the world.

This picture of the majestic Hahnville Live Oak was sent in by Dr. L. C. Chadwick of Ohio State University. The Southern Live Oak. *(Quercus Virginiana Mill)* is an evergreen tree that attains heights not much more than sixty or seventy feet but will often double its height in lateral spread. This tree is one of the most picturesque in the United States and when it is festooned with Spanish Moss it presents an eerie appearance. The tree is widely used thruout the South but has been misused in too many street sites where its huge proportions soon cause it to conflict with houses, utilities, sidewalks etc. Its principal use should be confined to parks or abnormally wide and spacious streets.

Trees With Pods

One of the spectacular sights in early May is a Redbud blushing amongst the understory of a wooded hillside. Examined closely, those little flowers which occur in bundles along the leafless twigs and clothe the tree with a mass of purplish-pink are found to be like the blossoms of a pea or bean. Later, they produce thin flat pods containing small brown seeds. This is one of several native American trees that belong to the Pea Family. Also called the Judas Tree, it is usually small and, unlike most of its relatives, has broad heart-shaped simple leaves — not compound. It is the state tree of Oklahoma.

The most valuable member of this group is the Black Locust. It spreads rapidly from its own seeds and its root system harbors colonies of bacteria that enrich the soil with nitrogen, like clover, alfalfa and other legumes. Altho the tree is subject to serious damage by a boring beetle, it is planted extensively for erosion control, shelterbelts and commercial use. Its natural range was greatly extended by the Indians who used the wood for bows, ate the pods when green and tender, and cooked the ripe kidney-shaped seeds as they did beans. The wood is very heavy, hard strong, durable and in demand for fence posts, mine timbers, ties, and insulator pins on telephone poles. The branches and twigs have short sharp spines and the compound leaves have from 7 to 19 leaflets on a petiole about a foot long. The drooping clusters of fragrant white flowers, very attractive to bees, are followed by brown flat pods about 3 inches long. Many of these remain on the tree until spring. In the southern Appalachians there is a species with gummy twigs and rosy flowers, called the Clammy Locust.

The Honey Locust becomes a larger, more graceful tree. The trunk and limbs usually bristle with sharp many-branched thorns which may be a foot or more in length. As boys, we used them for many purposes — including pins to hold up our "britches". We ate the sweetish pulp inside the green pods. The ripe pods are mahogany brown, twisted like an old strap, twelve or more inches long, and clatter in the winds as they hang on the tree all winter. The compound leaves are sometimes double compound. The hard heavy durable wood is used for the same purposes as black locust. A southern relative, found in flood plains and swamplands, is called Water Locust.

Altho uncommon as a wild tree, the Kentucky Coffee Tree — sometimes very large — is occasionally found at sites of pioneer homes or in small groups which may have been planted by Indians. It has stout crooked branches

and twigs, very scaly bark on the trunks of old trees, and huge twice-compound leaves which may be 3 feet long. Their branched frameworks of midribs create a weird spiderweb pattern after the leaflets drop off in early autumn. The pods, from 5 to 10 inches long, are dark-red, wide, thick and leathery. The round hard-shelled seeds make a very bitter substitute for coffee.

Yellowwood is a small pod-bearing tree of the middle South, rarely found wild but often planted as an ornamental. It has smooth gray bark, drooping clusters of fragrant white flowers, and bright yellow heartwood from which the pioneers made a dye. The Wild Tamarind of Florida and most of the desert trees in our arid Southwest belong to this family. One of them, the Honey Mesquite, is the state tree of Arizona. Its pods and beans, like those of the Mediterranean carob tree — the "husks" of which the Prodigal Son did eat — are sweet and nutritious.

"I will arise" said he, "and go to my fodder."

Roberts Mann,
Forest Preserve Dist. of Cook Co.

Another Blunder

A falling tree which smashed a passing automobile is the basis for a $52,587 claim filed against Seattle, Wash. The tree, a poplar, was shallowly rooted on a parking strip owned by the city, declared Prof. J. Hoover Mackin of the University of Washington geology department, who with Mrs. Mackin, was injured in the accident. The city engineering department was aware of the "defective" nature of the tree and should have had it removed, the Mackins assert.

Baseball At Shade Tree Conference

Word comes from one end of the country, Boston, that one of the things that passes for a baseball team (although they might amount to something having imported a manager from Cleveland) will attempt to stay awake long enough to go thru the motions at Fenway Park.

Joe Cooke White sent this schedule for anyone who might be interested in seeing at least one major league team while at the National Shade Tree Conference — Cleveland's Indians play the Sox on Tuesday the 19th, Wednesday and Thursday. The White Sox will be there Friday and Saturday. If you wish to make reservations, write Joe at the Fred Ralston Co. (not the Wheaties Company) 22 Linden St., Allston 34 Mass.

Hankow Contorted Willow

(Salix matsudana tortuosa Koidz)

The Contorted or twisted willow is a most interesting tree—and we believe could be a rather useful one. A close study of the picture will disclose the derivation of the name—Contorted—each branch and twig is very wavy and twisted giving the tree a very distinctive and unusual appearance.

The Contorted Willow is a native of N. China and Korea and was introduced in 1906. It is hardy in zone 4. The specimen shown in the picture (growing in Cleveland) is a beautiful thing and is just eight years of growth from an eight foot whip. The foliage is narrow—lanceolate and has the twisted characteristic of the branches. They are a not unpleasant grayish blue color.

This tree should be used more as an unusual specimen in parks—it never fails to excite interest. It should be tried as a windbreak or large hedge plant.

E. H. S.

NATIONAL SHADE TREE CONFERENCE
STATLER HOTEL — BOSTON
AUGUST 18-22

NAA NEWS

By PAUL E. TILFORD, *Secretary*
Box 426, Wooster, Ohio

Western Shade Tree Conference

The Western Chapter of the National Shade Tree Conference held its nineteenth annual meeting in Pasadena, California, May 14 to 16. Total registration was 246, the largest in the history of the Western Chapter. The pioneers who started the Western Conference 19 years ago wished that Ed Scanlon, who worked so hard on the early conferences, could have been present to see first hand how the organization had developed.

President Walter Barrows, other officers and committees had planned well for the meeting and its success was most gratifying.

Line Clearing Symposium

Following registration and formal opening of the conference on Wednesday morning by President Barrows, a symposium with C. F. Holderness as moderator brought forth a lot of good discussion. Representatives of utility companies tree trimming contractors, State Highway Division and Municipal tree departments engaged in the symposium. Problems in this field of work on the west coast are the same as in the rest of the country. All those involved are honestly trying to preserve the trees as well as possible and at the same time give tree clearance to overhead lines so they can function properly. The great number of very large trees planted in the past when few wires existed now make a big problem due to the expansion of utilities using overhead wires. It was very encouraging to hear so much discussion on handling the problem to the mutual satisfaction of all interested parties.

Apparently more use of aerial ladders, the mechanical monkey and power trimmers are being made on the west coast than in the east.

Huntington Gardens

On Wednesday afternoon the conference visited Huntington Gardens and Los Angeles County and State Arboretums.

The Huntington Botanical Gardens are a treat of the first order for the plant lover. There are 50,000 plants. In the collections are rare and unusual evergreens and deciduous shrubs and trees from every continent.

The Oriental Garden with its Wisteria, Rhododendrons, Flowering Peach, Plum, and Cherry and over 100 varieties each of Azaleas and Camellias is a marvelous sight. One of the most interesting and beautiful areas is the Desert Garden with over 25,000 plants, representing 2,500 species and varieties. Many of the cacti and other succulents were blooming and the sheer beauty of the flowers of some of these plants cannot be described by words.

Other centers of interest in the gardens are the Cycad collection and the Palm collection.

We were fortunate in having with us on the tour, Dr. William Hertrich, Curator of the Gardens.

Interest apparently has been revived, partly due to the activities of the Western Chapter Arboretum Committee, in the Los Angeles County and State Arboretum. Further development of this worthwhile project is anticipated.

Wednesday evening, Dr. Maunsell Van Renssalaer, Director, Saratoga Experimental Gardens, was moderator of a symposium on tree selection. Kodachrome slides of a large number of new and desirable trees were shown by several contributors. For we easterners the Southern California trees are almost unbelievable. I was glad that Brian Mulligan, Director, University of Washington Arboretum at Seattle, showed pictures of some trees which I recognized. This relieved a bit of the feeling of complete ignorance which encompassed me concerning California vegetation.

Panel on Plant Nutrients

Fred Roewekamp, City Forester, Los Angeles, acted as moderator of a panel Thursday morning on soils and plant nutrients. O. A. Matkin, Soil and Plant Laboratories, explained the limitations of soil analysis in determining fertilizer requirements of plants. Plant tissue analysis can be relied upon to give better information than soil analysis when the method is more completely worked out for ornamental plants and shade trees.

Dr. D. O. Crummett, Plant Physiologist, U.C.L.A.; Dr. O. R. Lunt, Soil Scientist, U.C.L.A.; Shirley Rowland, Arborist; and Leo Davis, Swift and Company, were others participating in the panel. Important points brought out were the following: In landscape plantings the soil is often filled in and compacted previous to planting trees. When trees are planted in this compacted soil drainage is very poor. Soil in the planting hole becomes saturated with water and the trees fail to grow because of inadequate soil aeration. Tile drainage and fracturing the soil were recommended as being necessary under such conditions.

An interesting fact brought out was that, when deciduous trees drop their leaves and the leaves are removed from the soil as much as 60 per cent of the plant nutrients taken up by the tree are removed. Hence, the need for fertilizing trees in landscape plantings soon develops even though the soil is fertile at the start.

Future of Tree-Care Industry

The Wetsern Chapter was so kind as to ask me for my views on the future of the tree-care industry. My thoughts on this were summarized as follows:

There will continue to be a need for the services of the arborist in the foreseeable future. To meet that need satisfactorily we should strive to raise the standards of our profession; we must find ways of interesting more young men in doing tree work; we must encourage and sponsor more research on our tree problems; and, we must select and use better trees in the future.

To obtain and retain more and better workmen we must pay a wage more comparable to that paid in other lines of work and by some means we must elevate tree-care work to more of a professional level. We must expect to train men ourselves. There is no supply of trained tree men anywhere in the country to draw upon.

Noon luncheon was served by Keeline-Wilcox and Select Nurseries at Brea. After luncheon a tour of the nurseries revealed many things of interest. Acres of lath houses filled with palms to decorate eastern banks, hotels, funeral homes, etc.; also acres of trees, few of which I recognized, azaleas, and hundreds of other plants in tin cans. The boxing of trees and the growing of trees in tin cans are practices we are unfamiliar with in the east.

Friday Program

Friday morning's program started with a symposium on disease, insect and weed control with Lynn M. F. Harriss of Oakland as moderator. Prof. Leland R. Brown, entomologist, U.C.L.A., showed excellent kodachrome slides giving life histories of oak moth, twig girdler, leaf roller, oak pit scale, sycamore scale and other insects.

Roger Sohner and Leslie Mayne, both arborists from the San Francisco area, assisted on the panel.

A real highlight of the program was a discussion on the pruning of trees by Dr. W. H. Chandler, Professor of Horticulture, Emeritus, U.C.L.A. Dr. Chandler's work on pruning ornamentals is published in California Agricultural Extension Service Circular 183,

entitled "Pruning Ornamental Trees, Shrubs and Vines" by W. H. Chandler and Ralph D. Cornell. This is a bulletin which everyone interested in ornamental horticulture should have.

Demonstrations

Field demonstration of equipment on Friday afternoon was a small edition of National Shade Tree Conference demonstrations. Chain saws, wood chipper, sprayers and other equipment were demonstrated. A rope-throwing contest created much interest. There was no need to find a high tree limb to throw the rope over. Two adjacent 75-foot palms were selected and the target was raised to any desired height by ropes through pulleys in the tops of the palms.

New Officers and Business

New officers for the coming year were installed after the banquet, Friday evening. President Walter Barrows asked Noel Wysong, president, National Shade Tree Conference, to install the following: President—Ross McIntyre, principal tree surgeon, city of Los Angeles; Vice-President—Lynn M. F. Harriss, assistant supt. of parks, Oakland; Secretary-Treasurer—C. E. Lee, line clearing supervisor, Edison Company.

Roy Morgan and Lynn Harriss were elected to the Board of Governors, N.S.T.C. and the following were elected alternates—Norman Hicks, W. G. Griffin, Robert Woerner and Sylvester Evans.

Next year's meeting will be in Santa Monica and in 1954 at Oakland. The Western Chapter hopes to be host to the National Shade Tree Conference in Santa Barbara in 1955.

Following the banquet the 34 men who have passed the examination set up by the Western Chapter Committee on Standards and Qualifications for Tree Workers were given diplomas. President Wysong of the National Organization presented the diplomas. The Western Chapter is to be highly commended on this new project they have started. This or some modification may well develop into a means of gaining recognition for tree workers over a much wider area than that covered by the chapter.

Highlights

The banquet Friday evening was a gala affair with President Barrows as toastmaster.

Dr. Pierre Miller easily won first place doing the hula-hula so gracefully to accompaniment furnished by The Haines Twins — Sylvia Louise and Louise Sylvia.

A clever magician got my Texas $100 bill messed up with egg.

Riley Stevens was there with his 10 gallon hat and a million dollar smile.

The Shady Ladies sure are swell gals. They initiated Van Rensselaer as a knight of the order, an honor bestowed on few gentlemen. We understand that at last year's meeting Walt Morrow received his knighthood.

And all members of the Western Chapter are a wonderfully fine lot of most hospitable people who made quite an impression on we easterners.

Chemical Brush Control

Striking evidence that chemical brush control is cheaper and better than hand cutting is the rapidly growing use of this post-war development by power, telephone and railroad systems, Homer L. Jacobs, technical service director of the Davey Tree Expert Co., told members of the Petroleum Industries Electrical Association in Tulsa, Okla., April 17.

A research pioneer on the chemical techniques, Mr. Jacobs said woody plants can be controlled or completely eradicated, if desired, by one or more of three chemicals in common use. These are 2,4-D, 2,4,5-T and ammonium sulfamate. C.M.U. was termed by the authority a "real comer" in the weed killer field. The latter is a soil sterilization type of chemical.

Right-of-ways choked with dense brush are most effectively attacked by the foliage sprays of brush killers. However, basal or stem sprays of the same chemicals diluted in oil, are practical for spot treatment of occasional clumps or where most woody stems have been eradicted by previous foliage sprays.

Ammonium sulfamate was said to be safest to use alongside of crops or near ornamental plantings, or for resistant species.

"This chemical brush killer does not have a hormone-like effect and by controlling direct spray drift, it can be used with safety alongside any crop," he stated. "Where crops sensitive to 2,4-D and 2,4,5-T are common, use of the safer and more effective ammonium sulfamate is always indicated, even though the initial cost may be slightly higher."

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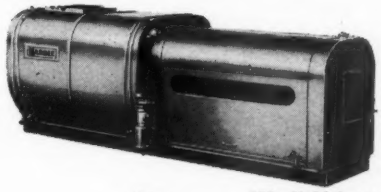

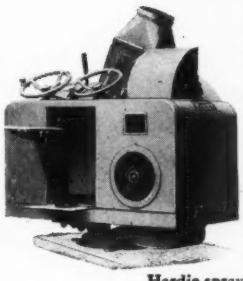

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Two Magnificent Small Acers

Acer capillipes (Maxim) Japanese Striped Maple

By Edward H. Scanlon

Not too much is known about this small maple except that it is outstandingly beautiful. The illustration will give some idea of the striking effectiveness of the bark. The winter picture that this beautiful tree would present is easy to visualize from branching effect presented in the picture. This striped bark tree is hardy in Zone 5 and will grow to about 30 feet. It is sensational in the fall when it turns a deep crimson. The leaves are reddish when unfolding and become bright green. On its own roots capillipes likes a moist shady site but it has been successfully grafted onto Acer pseudoplatanus roots which makes it possible to use the tree in almost any soil condition. In this form it should be given serious consideration for street use, but definitely it would add great charm to any home grounds.

Photos courtesy Jake Gerling, Rochester, N. Y.

Acer griseum (Franch.) Pax.–Cherrybark Maple

Without a doubt this small maple is one of the aristocrats of the tree family. The Cherrybark maple is a native of West China and was introduced in this country in 1901. The tree grows to about 30 feet and is hardy in Zone 5. It has two outstanding beauty characteristics—the peeling birch-like effect of the copper red bark is unusual and beautiful. This characteristic extends from the ground to the smallest twig. Its other feature is the blazing red hues assumed by the trifoliate leaves in the fall. Like *capillipes* it too is spectacular in the winter landscape.

Propagation of griseum is difficult. The seed germinates in two years, but poorly. It is reported that the tips of one year seedlings will root, but only in the first year. An attempt is being made to determine the possibility of grafting *griseum* on Acer negundo.

These two magnificent small Acers should be introduced to the American public. It is a sad commentary on Nurserymen and Arborists that they have not been widely publicized.

YOU'LL SEE THIS IN BOSTON — AND A CLAMBAKE

The Bunker Hill Monument — One of the places to see in Boston

There's Nothing Like Boston

BOSTON, HUB OF THE UNIVERSE, imposes an indefinable stamp upon her people . . . No matter what their religious, economic, or political differences, they are all, in time, Bostonians.

This seems as natural and as right as the traditional baked beans and brown bread on Saturday night . . . as the swan boats, laden with children, paddling sedately on the lake in the Public Gardens . . . as bench sitting on Boston Common in the summer sun . . . as the ever-present east wind, knifing in from the ocean.

Like everything else in this city, the unpredictable weather is a source of grim pride to the Bostonian . . . When he says Boston's weather is the trickiest in the world, he is not complaining. He is boasting.

It is an easy place in which to get lost, if you are a stranger . . . The streets, laid out on old paths and cow walks, twist and turn and double back . . . But this, too, is good — for it is the best way to see Boston.

The gracious old mansions on Beacon Street . . . the quaint blue-glass windows — here it is Sunday afternoon all week long. A stone's throw away, gaudy Scollay Square with its honky-tonks and tattoo parlors, beloved liberty land of sailors, known in ports throughout the world.

A little farther up Beacon Hill to Louisburg Square . . . landfall of the Most Proper of Bostonians . . . Almost an autonomous island: the aristocratic families living there own the whole square outright, meet once a year to tax themselves, have virtually no responsibility to city government.

Not far away, the spires of the "Old North Church," where the lanterns were hung for Paul Revere, rise in the turbulent North End of the city. The little stores exude a spicy aroma. It is a poor district, but it abounds with bright colors and good music and superb food . . .

A little farther on . . . sidewalks of glazed brick and red brick and narrow streets of cobblestone — and the Charles River flows silver beneath arched bridges . . . Nearby, the Shell where the Boston Esplanade Orchestra gives its summer concerts for families from all walks of life . . . During the day, myriad bright-colored sailboats dot the Charles . . . Students from Harvard and Massachusetts Institute of Technology, across the water, sun-bathe by the river's edge . . . At night, the lights of Cambridge resemble a luminous pearl neckless above the still, dark water.

Walk toward the wind and you will reach the harbor, where the boats come in with bumper loads of cod and haddock and scallops and shellfish . . . Nearby,the old wharfs — India Wharf, where clipper ships once brought exotic spices from Cathay.

Boston is a city of good living and fine restaurants . . . But Boston is, above all, an attitude — an air of contentment and quiet culture.

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B. G. PRATT CO. Insecticides Hackensack, N. J.

NATIONAL SHADE TREE CONFERENCE – BOSTON – AUGUST 18-22

Boxwood Leaf Miner

(Continued from Page 9)

the pupae in the leaves begin to turn black apply a spray. The adults emerge and begin to lay eggs the same day they emerge and if the spray is not on the old and new leaves, infestation can occur within less than 48 hours. If the infestation is heavy or if it rains shortly after the spraying repeat the spray, particularly if any of the flies are noticed flying about the plants. Good control of the young larvae in the leaves was obtained, according to Matthysse and Naegele, by spraying with 1 to 1½ pounds of 15% wettable Parathion powder to 100 gallons of water. The sprays were applied June 3, 20, 21 and July 17. Complete control of the young larvae was obtained in all sprayings except one where the wetting was poor.

Until further work can be done with Parathion on the boxwood leaf miner it would be well to use the DDT control and if this does not give good results, test the Parathion spray.

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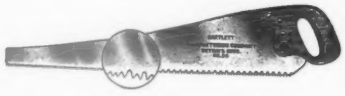
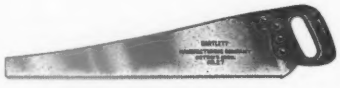
No. 41 Tuttle Tooth

This popular saw is made in 20 and 24-inch lengths. Equipped with a special extra-large handle. Tuttle tooth design is excellent for large cuts.



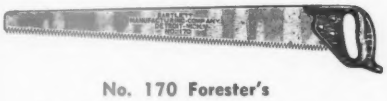
No. 26 Tree Expert's

Two styles of teeth on same cutting edge. 10-inch section at point of blade has 6 points per inch. Balance of blade has large teeth similar to tuttle tooth.



No. 27 Tree Expert's

Widely used for many years by arborists, the No. 27 26-inch has 6 points per inch, beveled forward. Also made in 28-inch length known as our No. 28.



No. 170 Forester's

Extra-large peg teeth, 4½ points per inch, and an unusually stiff blade make this 26-inch saw suitable for heavy cutting.

No. 124B Special Utility

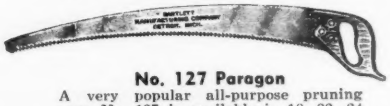
Our exclusive design provides big, husky cutting teeth with 4 points per inch. Fast cutting and easily sharpened. No. 124B has 24-inch blade. If 26-inch blade is preferred, specify No. 114BD.

No. 114B Special Utility

No. 114B is 26 inches long and offers same exclusive design as No. 124B except for handle. Fast cutting, easily sharpened.

No. 114 Rapid Cut

Similar to No. 114B except that every third tooth is a well formed raker. Gullets are especially deep to provide quick clearance. Also furnished in 24-inch length, known as No. 124 Rapid Cut.



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Miticide Proves Effective In Mite Control

Ovotran Wettable is a promising new miticide that will be of great interest to Nurserymen and Arborists. It will offer him control of those tiny pests which multiply rapidly and are destructive to plant foliage.

Developed by research chemists and entomologists of The Dow Chemical Company, this new product is an extremely fine wettable powder containing 50% p-chlorophenyl p-chlorobenzenesulfonate. The chemical has been known as K-6451.

It is unique in several respects. Among these is its outstanding destructive action to the egg stage. In fact, Ovotran Wettable is more effective as an ovicide than as an adulticide. Another important property is its long residual effect. Depending upon environmental factors, it will kill mites for several weeks after application.

Of great importance is its low toxicity to warm-blooded animals, as well as to parasities and predators of crop pests. It is also reported to have low toxicity to insect pollenizers which are important to crop production. Growers now have the opportunity of combining chemical and biological control in one operation. At the same time Ovotran Wettable is not hazardous to the operator.

Among the mites it will control are most Tetranychid species. These include citrus red mite (purple mite), European red mite, two-spotted spider mite, Pacific mite, spruce mite, oak mite and Southern red mite. Also, boxwood mite, honey locust mite, Strawberry spider (Atlantic) mite, Williamette mite, six-spotted mite, and the clover (brown almond) mite.

Another desirable quality is its chemical compatibility with other insecticides and fungicides. For example, it is compatible with such chlorinated hydrocarbons as DDT, toxaphene, chlordane, methoxychlor and lindane, with phosphates, arsenicals and lime-sulfur. Also, with zinc-lime, bordeaux mixture, fixed copper fungicides, dormant and summer oils, and with other similar compounds. Ovotran Wettable is one of a very few materials that is compatible with alkaline mixtures.

To date, it has shown unusual miticidal effectiveness on citrus and deciduous fruit and nut trees, shade trees, ornamental shrubbery, cotton, melons, grapes, and other crops. Wide-spread field tests have shown that this chemical is not injurious to these same plants and trees when it is used as suggested. Black raspberry and hardy privet, however, are sensitive to Ovotran Wettable. Care should be used in applying it to

greenhouse roses during winter months, when sunlight is limited. With a few exceptions, it appears relatively non-toxic to plant foliage.

The usefulness of Ovotran Wettable has been demonstrated over a period of four years in a large number of field tests in many areas of the United States and Canada. Considerable tests for greenhouse use have been carried on at Cornell University, Colorado A & M College, University of Illinois, and at the U. S. Department of Agriculture, Bureau of Entomology and Plant Quarantine Laboratories, Beltsville, Maryland.

It has been tested on fruit trees in Ohio, Illinois, Pennsylvania, Indiana, New York, New England, the West Coast, and Canada. Areas where it has been tested on shade trees and ornamental shrubs include New York, Massachusetts, Connecticut, Ohio, Kentucky and Colorado. The chemical has been used on cotton, primarily in California, Arizona, Texas, Mississippi, Louisiana and Arkansas. Tests are in progress this year in practically all the cotton states. Wide-spread tests in California and Florida on citrus trees have shown excellent results. Considerable intrest in its use in California includes, in addition to cotton and citrus trees, grapes and melons.

With the advent of DDT and certain other new organic insecticides to control mosquitoes and other pests, extremely rapid increases in mite populations have been noticed. It has been demonstrated that their use has resulted in the destruction of those beneficial insects that prey upon mites. In other words, these chemicals have interfered with biological control. Ovotran Wettable in combination with these chemicals will prevent a build-up of severe mite populations.

Preventive rather than corrective control of mites is recommended by F. W. Fletcher, of the Technical Service and Development department of The Dow Chemical Company. "This preventive control utilizes several applications of a low dosage of Ovotran Wettable as a means of keeping mites at a low population level," he advises. "On the other hand, corrective control measures make use of a very few applications of a high dosage of the miticide. The seasonal cost is no greater, and possibly less, with a preventive schedule and at the same time it tends to keep the new plant growth protected at all times."

Application may be made with standard orchard spray or mist-blower type of equipment. It may be applied in both low-volume and high volume applicators.

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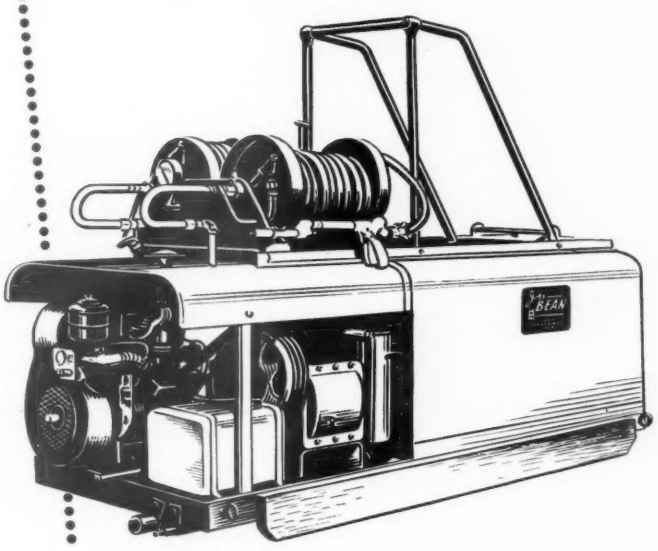
No matter what type of spraying job you are doing, you'll find the *right* sprayer for them in the complete John Bean line. When you fit a John Bean sprayer to the jobs, you cut costs, and do a better job, faster. You have your choice of outputs from 3 to 60 g.p.m., at pressures to 800 lbs. in a wide range of models and tank capacities. Write for information and catalog — Dept. T-6.



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PLANT AND SPRAY THE IRON AGE WAY

Insects As Carriers

(Continued from page 7)

rates of development, resistance to unfavorable conditions, life cycle, etc.

Likewise, it is necessary to know the life cycles, flight, feeding, mating and oviposition habits, distribution and abundance of the insects.

The ecological and developmental relationships between the three, i. e., how each affects the other, should be understood.

When one considers the numbers of kinds of trees, adds the numbers of possible disease producing organisms, and recalls that there are over 1,500,000 types of insects described, he begins to obtain some idea of why progress in the field was relatively slow until the last fifty years.

With this general background, let us now look at what is involved in a specific case. We will use the current studies supported by the National Oak Wilt Research Committee, in Wisconsin on possible transmission of oak wilt by insects as an illustration. Similar studies are also being made elsewhere. For our purposes we will assume that there actually is insect transmission — either by a single insect or by a group of insects with similar habits.

The first thing necessary is to gather our facts.

I. What is known about the disease?

Here the entomologist is dependent upon plant pathologists for information. All of the facts which we shall review regarding the disease have been discovered by the pathologists.

Until last year the perfect stage was unknown. It is now known that there are plus and minus strains of the fungus and that ascospores are formed in flask-shaped perithecia. The ascospores are extruded from the neck of the flask in a gelatinous white matrix. Such perithecia have been observed under the bark of a tree in Illinois. When the bark cracks or pulls away the fungus is exposed.

The disease is spread locally from tree to tree through root grafts. It may jump suddenly for a distance of from a few hundred feet to at least ten miles. There seems to be no particular pattern to this long distance spread.

From this brief review of the disease it is evident that the pathologists have been giving those engaged in studying possible transmission plenty to work with. However, information is needed on the viability of spores in air and on other possible hosts.

II. Next let us ask "What do we know about the suscepts?"

Time will not permit even a summary of what is known about oak. (Nor do I feel qualified to give one.) However, I would like to quote from Craighead,[1] "Oaks are also affected by drought, but the association of insect attack is not so clear, often being delayed 2 or 3 years, by which time the trees show attack by a root rot *(Armillaria)*, or readily become infested with *Agrilus* beetles, and die."

III. What do we know about the insects on oak? We will answer this by saying that some kinds of oak are supposed to have over 1,000 species of insects associated with them.

[1]Craighead, F. C. 1950. Insect Enemies of Eastern Forests USDA Misc. Publ. No. 657. p. 13.

IV. What steps are necessary in order to prove transmission?

Leach[2] answers this question as follows:

"It is believed that the following requirements constitute the minimum for adequate proof of insect transmission of a plant disease.

1. A close, although not necessarily a constant, association of the insect with diseased plants must be demonstrated.

2. It must be demonstrated that the insect also regularly visits healthy plants under conditions suitable for the transmission of the disease.

3. The presence of the pathogen or virus in or on the insect in nature or following visitation to a diseased plant must be demonstrated.

4. The disease must be produced experimentally by insect visitation under controlled conditions with adequate checks.

It is equally necessary that the postulates of Koch be observed, for if there is an error in the diagnosis of the disease the remainder of the evidence is invalidated."

One cannot be too careful!

With this information all we have to do is find out what the vector is! Our problem is to define the habits of the vector as closely as possible and then search among the insects known to have those habits.

What are the possible methods of approach?

1. Use of literature — Examination of the literature reveals that the oak wilt organism is structurally much like that of blue stain and Dutch elm disease. The three are also similar in the way they fruit under the bark. The conidiospores of Dutch elm disease may be carried along in the sap stream like those of oak wilt. Both blue stain and Dutch elm diseases are carried by bark beetles. Therefore we should suspect them as possible vectors of oak wilt. The only difficulty with this is that bark beetles on oak have been found on only one occasion during our studies in Wisconsin. However this may be of little significance.

[2]Leach, F. G. 1940. Insect Transmission of Plant Diseases. McGraw-Hill. p. 541.

(Continued on page 20)

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You'll find that Pennsalt "34" is a *stable* emulsion . . . can be used with all types of equipment. And mixes are easy to make up because the exact weight of DDT is known before you start.

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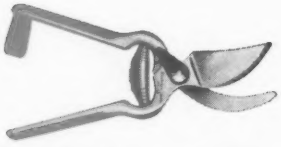

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Insects As Carriers

(Continued from page 18)

Certain other diseases also appear to be quite similar to oak wilt in their behavior.

The literature reveals that a considerable number of insect types are known to transmit fungi. Included are flies, beetles, wasps, true bugs, aphids, leafhoppers, tree crickets, thrips and mites.

It also shows us that the transmission is probably mechanical.

2. Survey — By collecting insects from oak in wilt-free and wilt-containing areas and examining the records carefully it may be possible to eliminate a large number of forms. The insect fauna just above and below the northern limit of the range of oak wilt in Wisconsin is being studied for this reason. An insect on both sides of the line may perhaps be disregarded as a vector.

3. What can we obtain from the distribution pattern of the disease within an area? There appears to be no particular pattern to the outlying spots of infection. Therefore, oak wilt does not look like it is associated with insect abundance. If it were carried by one species and correlated with numbers we should find the spots increasingly closer together near the center of the infected area. Since this does not happen it means that we are dealing either with a poor vector or a relatively scarce insect or perhaps both. This in turn shows that negative evidence means nothing. Perhaps the insect tested today could carry the disease tomorrow. It would be much simpler if we could just test and eliminate.

4. From what we can learn, the time of greatest spread of oak wilt into new areas is during the early summer. This means that the vector should be most abundant and active in May or early June.

5. From the behavior and distribution of the fungus within a single tree a number of things are evident.

a. We must consider insects feeding on all parts of the tree — root, trunk, twig and leaf.

b. We must consider both chewing and sucking forms. Since the oak wilt organism has never been isolated from the phloem, we may be able to eliminate most of the aphids and leafhoppers because they usually feed on phloem tissues. In contrast, other insects such as the spittle bugs and tree hoppers become suspects.

From the time required for symptom development, we should be examining the trees from one to three weeks before they show symptoms. But how can we tell which trees to collect from? It is necessary to inoculate trees artificially and collect from them at regular intervals to be sure that the insects are feeding on diseased trees.

Detailed examination of wilting and disease-free trees has not shown thus far that there is any particular type of wound or insect feeding associated with the wilted trees.

The funnel used for collecting insects from Oak trees. The insects are jarred from the tree into the funnel and slide into the glass jar.

The procedures which we are using in our study may be briefly summarized as follow:

1. *Survey:* Insects have been collected from areas where wilt is present and where it is not present. We are now studying roughly 12,000 insect specimens so collected. Collecting has been done by a net, by a collecting funnel, under the bark, etc. Collecting in the tree tops is not an easy job.

2. *Caging:* Insects collected from diseased trees have been caged on healthy trees on branches or the trunk with negative results.

In some instances the diseased oak was also placed in the cages. Results were negative.

3. *Inoculation:* Insects were collected from diseased trees, wounds made in the trunk of healthy trees through the bark and the insects crushed into the wounds, which were then covered with cotton and cloth. Results were negative.

4. *Laboratory tests:* We have been attempting to obtain evidence of the possibilities and conditions for mechani-

(Continued on page 22)

Insecticides to Control

- MITES
- ELM BARK BEETLES
- CANKERWORMS
- APHIDS

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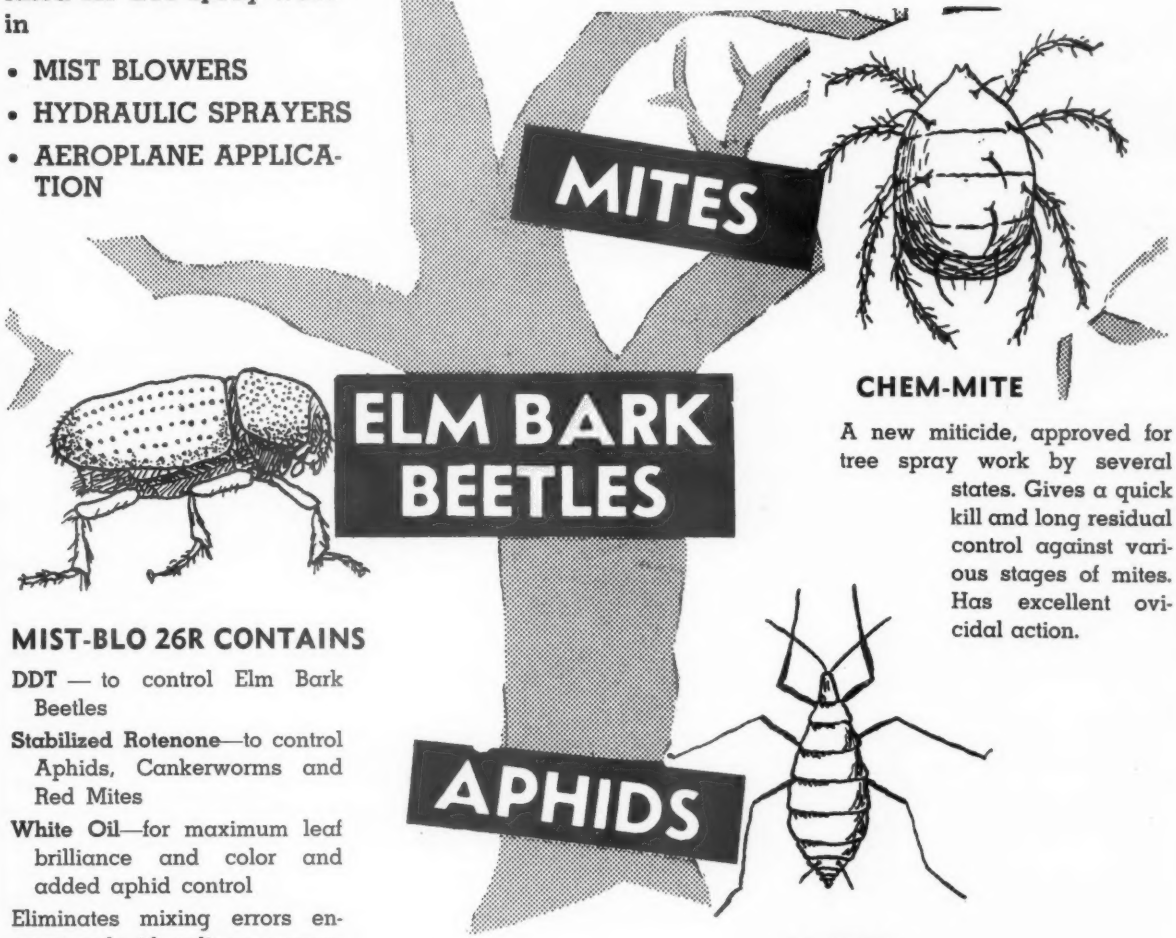

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Stabilized Rotenone—to control Aphids, Cankerworms and Red Mites

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Eliminates mixing errors encountered with ordinary sprays. MIST-BLO 26R is a completely prepared spray.

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Compatible with usual insecticide concentrates such as DDT, Chlordane, Pyrethrum, etc.

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DURASHEAR (shear type)
DURACUT (anvil type)

H. K. PORTER, INC., Somerville 43, Mass.

Insects As Carriers

(Continued from page 20)

cal transmission and to discover whether or not the conidia will pass through an insect and remain viable. We were unable to find viable spores on or in grasshoppers which fed on oak leaves sprayed with a spore suspension. The same was true for the larva of one of the giant silkworm moths.

Other tests are to be made to determine whether or not sucking insects can pick up the spores. A great deal could be said about specific insects and their possibilities as vectors but such detailed information cannot be considered here.

After a vector is found, the work is only well underway. It will be necessary to study the life history very carefully, examine other insects which have habits, make surveys for ranges and abundance, and finally to develop methods for control.

In this work we are definitely researchers. A researcher has been defined as "a person who doesn't know what he is looking for but isn't happy until he finds it."

However, each new piece of information in some way refines and limits the group from which the first actual, demonstratable vector will be taken and in time the puzzle will be solved by somebody.

Cut Shade Tree Spraying Time
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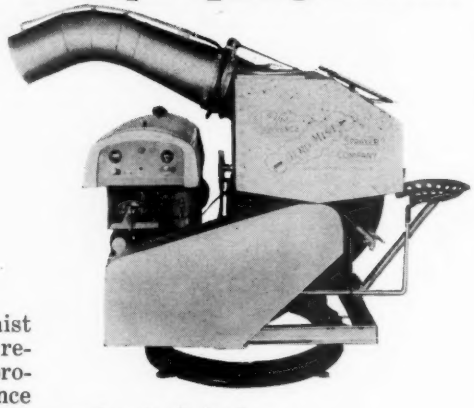

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Hurry! Order Those Plant Propagator Proceedings

Plans have been completed for the publication of the proceedings of the Plant Propagators Society. The first meeting of the Society was held in Cleveland, Ohio, November 8th and 9th, 1951.

The organization has no formal constitution but is being guided by an eight-man committee. This committee has decided to publish the proceedings if sufficient cash orders are received in advance to finance publication costs.

If you wish a copy of this, the first proceedings of this Society, which had such an enthusiastic organization meeting last November, you are asked to send $2.00 with your order to the temporary chairman, Edward H. Scanlon, 7621 Lewis Road, Olmsted Falls, Ohio. The proceedings will contain the papers given by Richard Fillmore, F. L. O'Rourke. L. C. Chadwick, Forrest Strong and shade tree selection pictures by Edward H. Scanlon. A minimum number will be printed so hurry your order and reserve a copy of these valuable papers.

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World's Biggest Forest Products Exhibit To Open In Portland

PORTLAND, Ore., — The biggest permanent forest products exhibit in the world will open its doors in Portland next June.

And it will be housed in the world's biggest log cabin. Portland's famed old "Parthenon of the Forest," the mighty building whose principal supports are 52 gigantic Douglas Fir logs, is being converted into a majestic "Gallery of Trees" featuring three-dimensional exhibits of the modern western forest products industry.

Completely renovated and dramatically lighted, the vast 206 by 102 foot structure was formally re-opened Sunday, June 8, as the initial event of Portland's annual week-long Rose Festival. But the Gallery of Trees will be a permanent exhibit open winter and summer without charge to visitors.

Originally erected in 1905 as part of the Lewis and Clark International Exposition, the vaulted "cabin" once housed exhibits of Oregon's fir, pine, hemlock, spruce and rare myrtlewood. Now, through the combined efforts of Pacific Northwest forest products producers and Portland citizens, it will shelter a comprehensive display of modern forest industry methods and products.

Most spectacular of them all will be a replica of a fire lookout station perched high above the floor, commanding a sweeping view of the colossal colonnades and exhibits nestled among them. Visitors will mount an open stairway to catwalk around the lookout, exactly as though they were in the forest. Inside, all the instruments and equipment used in fire spotting will be demonstrated.

Floor exhibits will display modern industrial forestry, logging and sawmilling, plywood making, pulp and paper, the manufacture of hardboard and insulating board, preservative treatment of wood, construction of laminated beams, woodworking, furniture making, and the production of shingles, battery separators, boxes and other forest products.

But the historic old structure is an attraction just in itself, a mecca for tourists from all over the world for 47 years. Towering 72 feet tall from the crest of a rise overlooking the busy Willamette river harbor, it is a monument to the logger's skill.

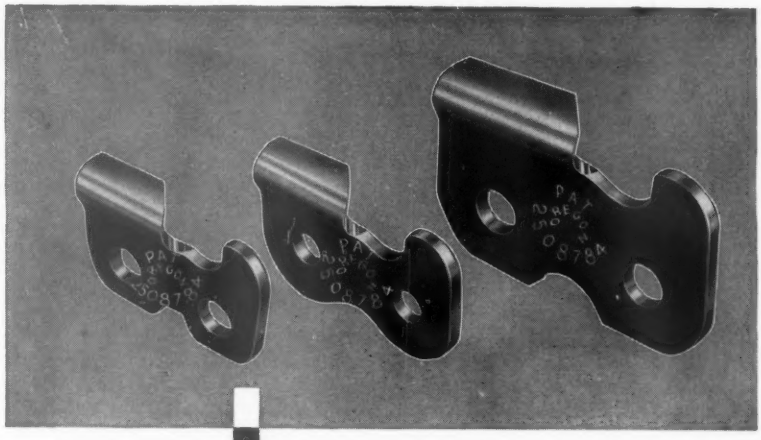
Each of the 52 huge logs standing in double column formation soars 54 feet and more to the rustic rafters above. Each is 6 feet through at the base, five feet at the top. Each was chosen for its symmetry and its strength. The building was designed to stand for 25 years, but only two years ago — when the structure was 45 years old — just nine of the colossal pillars had to be replaced.

In all, there are more than 300 of the world's largest Douglas Fir logs in the fabled old building. Most of them form the walls, and in true log cabin fashion they were bitted by hand with axe and adze. Hardly a nail was used.

Inside, the cathedralesque cabin resembles the temples of old with their fluted marble columns. Unlighted, only the twilight of tall timber illuminates the scene and even the acoustical quality of the deep forest has been remarkably reproduced.

In the "good old days," the building was constructed for only $30,165. Logs were put in place for about $50 each. Today the same logs would cost well over $500. The complete construction probably could not be duplicated for less than a half-million dollars.

As the "Gallery of Trees," it will now house a collection of exhibits representing the west's biggest economic factor — a billion-dollar business that has grown from the simple function of lumber production to a complex industry turning out a multitude of forest products. It will link the past with the present in Portland, the world's most forested city.



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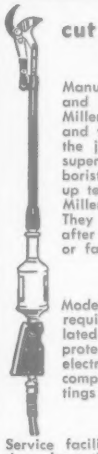

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GARDEN CLUBS

(Continued from page 8)

you will protect your townspeople from the inexperienced and from the peddlers who go from door to door selling inferior nursery stock and questionable insecticides. Tell the story of "Plant America" and how it can benefit your town. Later you will be given credit for helping to beautify your town buildings by the proper planting and placing of needed trees. In three years Plant America, this wonderful project of the American Association of Nurserymen, has risen to such importance that it has been officially recognized by 23 States, and last September was the winner of the American Trade Association's highest award for distinguished service in the Trade Association Field. Much of its success is due to its practical appeal to the women.

Last month I attended the Mid-Western Shade Tree conference at Chicago. While there I had an opportunity to conduct a little questionnaire among some of the members, who represented many states throughout the middle of our country. The question I asked the Arborists and Landscape Engineers — "What percentage of your business do you receive from women?" Their answers ranged from 50% to 98%. The second question I addressed to those in town and municipal work. "What help and cooperation do you receive from women's organizations, such as Garden Clubs, Horticultural Associations and Women's Clubs?" Their answers were not as easily expressed in terms of percentage, but they were 100% in agreement on the importance of recognizing these women's interest and all agreed it was their duty to meet it. Those who had, felt well repaid.

Only one man whom I have talked with on this subject in the past year, expressed dissatisfaction over the results of his efforts to obtain the help of the Garden Clubs to improve a Municipal condition. His gripe was mostly for the time he had spent in talking to Clubs. He is a busy man and may have expected action before they were ready to give it. What he did not take into consideration was what he had given them. They could not help being impressed by his sincerity and knowledge. The establishing of friendly relations and confidence is half the battle in dealing with any group. Maybe I just talked to him on the wrong day.

The City of Denver, Colorado is an outstanding example of good teamwork between private tree business, Municipal Park Departments and the Women's organizations. This success is due largely to Mr. George W. Kelly, Editor of "The Green Thumb," the publication of the Rocky Mountains Horticulture Association. Mr. Kelly's high standards guided not only the women's work in Horticultural pursuits but has been felt in private and municipal work. As a result of this mutual confidence, a woman, Mrs. Charlotte Barbour, has been appointed Assistant City Forester of Denver.

You all know the help your wife gives you in your business. If she only answers the telephone it is important to the Tree Warden and to the Tree Surgeon, and many wives do much more than this. I urge you members of the State and the National organization to invite your wife and make it possible for her to go with you to the annual meetings that she may feel she is sharing in the fun as well as the work and it will be a reminder to both of you all through the year of the importance of your work. Then too, it has a practical point not to be overlooked. Sickness and accidents occur. Who is better able to carry on for days and sometimes weeks than your wife, providing you have let her share the job?

The Garden Club is just Sam Jones' and Al Smith's home and if you give your best to your neighbor and to your town in this work, it will not only be of great service to this generation but to those that follow. You will gain

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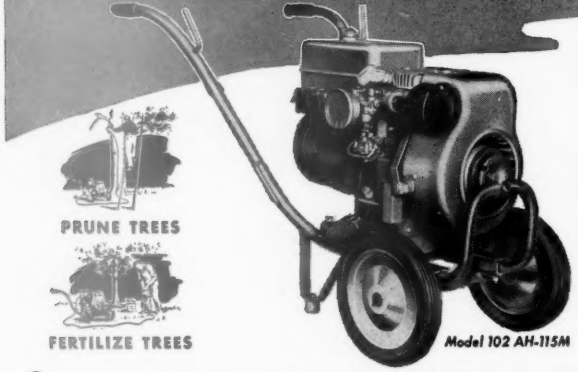

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spiritually in your contacts with nature. Wherever you go there will be a bond between you and your fellow plantsmen that will open new fields of interest in your work, and you will be rewarded by the friends you make.

All over the world there has been destruction and a great loss of trees. Wars, disease, and years of neglect have taken their toll. Now the people are tree conscious and tremendous efforts are being put forth by them to replace this important part of their life, which affects climate, the soil and the very oxygen we breathe.

In this work there is no question of money versus time. Talk to anyone connected with research and the Tree business and you will realize he has gone into it and remained, because of an intangible link with nature. To carry on this work requires as definite talent as that given an artist to paint a picture, for you too are creating beauty and lasting benefits.

I appreciate your patience in listening to these few remarks the truth of which many of you have already learned by experience. To those of you starting in as Tree Wardens, I wish only the pleasantest relations in your efforts to cooperate with the Garden Clubs and your Town organizations. Do not be easily discouraged, it takes patience to deal with the public and for some of you it takes courage to deal with women. Remember they are learning and need your guiding hand.

NATIONAL SHADE TREE CONFERENCE BOSTON AUGUST 18-22

Shell Chemical Corporation To Continue With Aldrin and Dieldrin

Shell Chemical Corporation has completed arrangements to purchase the stock of Julius Hyman & Company of Denver, Colorado, and has concluded an agreement with the Velsicol Corporation of Chicago for exclusive rights world-wide, to aldrin and dieldrin, important agricultural insecticides, it was announced today by Jan Oostermeyer, president.

Aldrin and dieldrin have proved particularly effective against cotton insects including the dreaded boll weevil. Dieldrin has also met with great success in controlling the alfalfa weevil. Aldrin attracted world-wide attention last year when the Iranian government appealed for help in combating its worst locust plague in eighty years. Under the ECA program, thirteen tons of aldrin were flown to Teheran and applied at the recommended strength of only two ounces per acre. Within 24 hours, 98% of the insects were killed, the plague was broken and the threat of famine erased. Observers reported that palm trees, actually bent and sagging under the weight of the locusts, straightened up soon after being sprayed. In the Rocky Mountain area aldrin has also been used with great effectiveness against grasshoppers, using the same dosage of two ounces per acre.

Just recently aldrin has been accepted for registration by the U. S. Department of Agriculture for application against rootworms and wireworms, soil pests which are among the worst enemies of such food crops as corn, peanuts, sugar beets and small grains. In these as in other applications, aldrin's chief advantage is its extremely high potency per unit applied. Thus it makes insect control possible at low cost. Dieldrin is even more powerful than aldrin and many new crop uses are in the offing for this insecticide.

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For far too long shade tree diseases have run their devastating course unchecked. Today, after years of scientific research PURATIZED AGRICULTURAL SPRAY brings them under control. Long and thorough field tests have proved its effectiveness in preventing parasitic foliage disease of trees and shrubs. Assure the health and beauty of your trees with this new, scientific PURATIZED way of disease control.

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Authors and Books

The following books may be ordered from TREES Magazine, Box 5607, Cleveland, Ohio

OUR GARDEN SOILS, by Charles E. Kellogg. The Macmillan Co., New York. 232 pgs. $4.00.

Your garden—a window box or a thousand-acre farm—can only be as good as its soil. Soil condition determines the success of a garden, whether it be vegetable, herbs, flowers, trees, small shrubs, or field crops.

This book makes the complex knowledge of soil science available to you for solving the problem of your own garden wherever it is—in the city, the suburbs, or the country. Is your soil too sandy, too wet, too sloping, too thin, too clayey, too dry, or lacking in fertility? The solution can be found within these pages. Dr. Kellogg tells you, in non-technical language, how to determine soil types, how to maintain proper amounts of organic matter and moisture, how to control soil acidity, and how to balance plant nutrients. Numerous tables recommend specifically the plants that are best for specific soils.

Though the greater part of the book deals with garden soils, there are also discussions of tillage, site relations, protection, lawns, potting soils, transplanting and garden planning.

The appendix is, in itself, an excellent reference work. It contains a discussion of soil maps, separate lists of soil preferences for each group of commonly grown plants, planting suggestions and yields of selected vegetables, four maps showing frost dates, and extensive bibliography, and a list of addresses of agricultural experiment stations.

* * * *

MODERN GARDENING, by P. P. Pirone. Simon and Schuster, 630 Fifth Ave., New York. 371 pgs. $3.50.

How to feed plants through their leaves, how to spray weeds to death, how to beat the insects, how to speed up or slow down the growth of vegetables and flowers, trees and hedges—these are some of the questions answered in this book. Here is the first complete guide to the miracle drugs modern chemistry has developed for the commercial farmer and for the back-yard gardener. This is the case for modern science in the old debate over what makes a good garden grow.

A special section gives the answers to some five hundred of the questions most frequently asked of the author, who is the outstanding American authority in this field.

* * * *

JAREB, by Miriam Powell, Thomas Y. Crowell Co., New York. 241 pgs., illus. $2.50.

Even Jeb had to admit that Maw was right Sawbuck was a trifling no-account hound. He was no good as a watchdog; he was gun-shy and too lazy to hunt. But he was the only friend that Jeb had, and Jeb knew that he had to make Sawbuck earn his keep somehow.

Sawbuck was not the only problem that plagued Jeb. There were the turpentiners; the contest at Callahan Calhoun's; the problem of Paw's loblolly pines. Most important was the danger that threatened every family in the Georgia community where Jeb lived. Somebody was setting forest fires throughout the county. It was hard to figure who could be doing such a thing and why.

Jareb is more than the story of a boy and his hound dog. It is a rich, full picture of a fight for existence on the part of a poor, proud people. It is a story of pine forests, the men who have destroyed them, and the men who are restoring them.

This is no milk-and-water picture of a "quaint" people. Violence and even death play their part in Jareb's story. Jareb's tart-tongued Maw and his easy-going Paw are sharply drawn, and so is their struggle for food and shelter. The reader will—like Jareb—often have to swallow back his tears. More often he will laugh with delight at the funny things and the good things that happen to this fourteen-year-old Georgia boy.

* * * *

PATHOLOGY IN FOREST PRACTICE (2nd Edition), by Dow Vawter Baxter. John Wiley & Sons, Inc., New York. 601 pgs., illus. $7.50.

Since tree diseases play such a vital role in tree production and utilization, their prevention and control is of great importance to the forester, the plant pathologist, the arboriculturist, the tree surgeon, the landscape design engineer. This book presents the "inside story" of the origin, nature, and causes of diseases in trees and forests throughout the United States, Canada, and Europe. It tells *how* to check, regulate, and control pests and diseases that destroy or limit the usefulness of trees and products, and *how* to save money by accurately diagnosing the disease and its cause. Backed up by the author's many years of field experience here and abroad, this book couples the latest scientific developments with sound, tested principles and techniques of forest disease prevention and control.

After diagnosing plant disease in general, the author treats the fungi which cause disease and then discusses the relation of site and cultural practice to disease incidence in the nursery, the plantation, and the mature forest. The relation of fungi and other plant pests to disease is thoroughly considered as is the site and care of shade and park trees. The final chapters cover the handling and treatment of decayed and defective forest products, and discolorations, stains, and molds in forest products.

Some of the new advances incorporated in the second edition: the attention given to pole blight in the northern Rocky Mountains and to the dieback of birch in New England; a better understanding of littleleaf disease of pine in southeastern Piedmont; the use of DDT and 2,4-D in forest practice; the prominence of virus diseases; the effective use of preservatives, anti-stain and anti-mold chemicals; the interrelation among insects, fungi, and disease; and the new emphasis given to the fact that both site and cultural practices cause or attract fungi or disease.

* * * *

TEXTBOOK OF WOOD TECHNOLOGY (Vol. 2), by Brown, Panshin and Forsaith. McGraw-Hill Book Co., New York. $10.00.

Here is the second volume of this outstanding two-volume work, which now stands as the only comprehensive text in English embracing all phases of wood technology. Volume I dealt with the structure, identification, defects, and uses of the commercial woods of the United States. The second and final volume is concerned with the physical, mechanical, and chemical properties of wood, with information arranged under these three headings.

Part I, The Physical Properties of Wood, consists of six chapters. The density and specific gravity of wood, wood in relation to heat, moisture, sound, light, and electricity, and the bonding and finishing of wood are discussed at length.

Part II is entitled The Mechanical Properties of Wood, Sixteen chapters are devoted to the basic principles of mechanics as they apply to wood, to the strength properties of solid and laminated wooden members, to testing procedures, etc. Considerable attention is also given to the design of typical timber structures, to the determination of stresses in framed structures, and to the holding power of timber fasteners.

Part III, The Chemical Properties of Wood, has been added to round out the information encompassed by the term wood technology. The chemical properties of wood are not treated exhaustively from the standpoint of wood chemistry but rather from that of a layman approaching this subject for the first time.

A classic in the field, this volume represents the combined efforts of experienced teachers and is designed expressly for teachers and students who desire a comprehensive knowledge of wood technology.

* * * *

RANGE MANAGEMENT, by A. W. Sampson. John Wiley & Sons, Inc., New York. 570 pgs., illus. $7.50.

The most comprehensive study of its kind in print, *Range Management* is written in the belief that research knowledge is the vital foundation of improved range management practices. The proper use and conservation of range resources is a basic necessity to the West, to the Nation, and to the World. Here well-defined principles of range management and their practical applications are set forth by an authority, long awakened to the responsibility of putting this vital resource in order.

Different from any previous text on the subject in its broad scope, *Range Management* joins considerations of care and management of the land, its grazing animals, and its timber with the sciences upon which sound practices must be based. Years in the making, the book is the synthesis of texts and outlines used in the author's classes in agriculture, botany, forestry, geography, and related fields.

Replete with illustrations, *Range Management* is thorough enough for a full course in the subject. A bibliography at the end of each chapter provides collateral readings for the aggressive student.

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